

Art Unit: ***

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1. A data storage medium having an optical information carrier which comprises a plurality of plies (10) of a polymer carrier (11) through which information can be read from a preselected polymer carrier ply (10) and, optionally, can be written to a preselected polymer carrier ply (10) and which is formed around an optically transparent core (30) whose refractive index differs by less than 0.09 from the refractive index of the polymer carrier (11).
2. The data storage medium as claimed in claim 1, characterized in that the core (30) is sleeve-like or cylinder-like and has a recess (32) in its central area.
3. The data storage medium as claimed in claim 2, characterized in that the recess (32) is disposed to accommodate a read device (2) and, optionally, a write device (2) of a drive that is attuned to the data storage medium (1).
4. The data storage medium as claimed in any of claims 1 to 3, characterized in that the polymer carrier (11), which preferably comprises a polymer film (11), is wound spirally around the core (30).
5. The data storage medium as claimed in any of claims 1 to 4, characterized in that the core (30; 40) comprises a plastic.
6. The data storage medium as claimed in claim 5, characterized in that the core (30; 40) comprises one or more of the following materials: polymethyl methacrylate, cycloolefinic copolymer.

Art Unit: ***

7. The data storage medium as claimed in claim 5 or 6, characterized in that the core (30; 40) is provided with an anti-scratch coating.
8. The data storage medium as claimed in any of claims 1 to 6, characterized in that the core (30; 40) comprises a glass.
9. The data storage medium as claimed in any of claims 1 to 8, characterized in that there is an adhesion layer (12) between each pair of adjacent polymer carrier plies (10).
10. The data storage medium as claimed in claim 9, characterized in that the refractive index of the adhesion layer (12) differs only slightly from the refractive index of the polymer carrier (11).
11. The data storage medium as claimed in any of claims 1 to 10, characterized in that the refractive index of the polymer carrier (11) can be changed locally by heating.
12. The data storage medium as claimed in claim 11, characterized in that the polymer carrier (11) is assigned an absorber which is disposed at least partly to absorb a write beam and to emit the generated heat at least partly, locally, to the polymer carrier (11).
13. The use of a data storage medium as claimed in any of the preceding claims 1 in conjunction with claim 3 in a drive which is mounted to it and comprises a read device (2) and, optionally, a write device (2), the read device (2) and the optional write device (2) being disposed in the recess (33) in the central area of the core (30) and being moved relative to the data storage medium (1), while the data storage medium (1) is stationary, for the purpose of reading and/or writing information.

Application/Control Number: 10/089,047

Page 4

Art Unit: ***